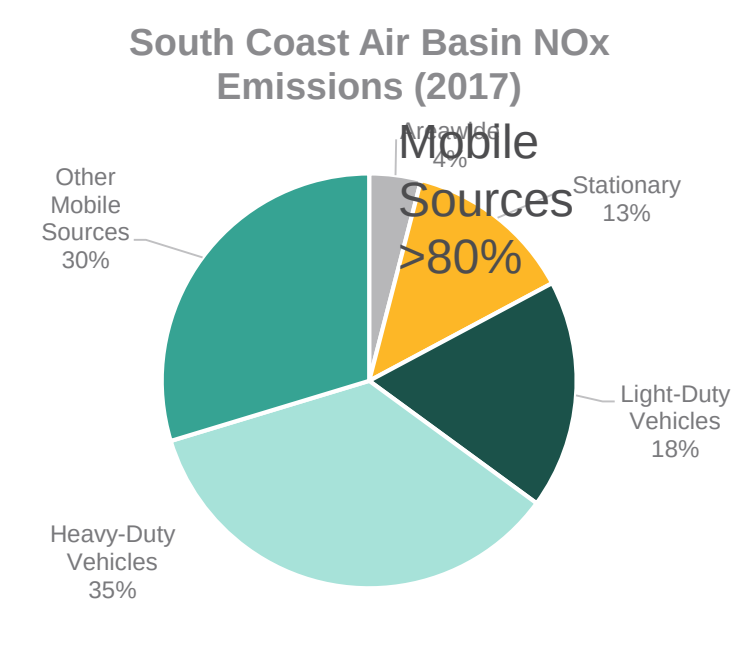
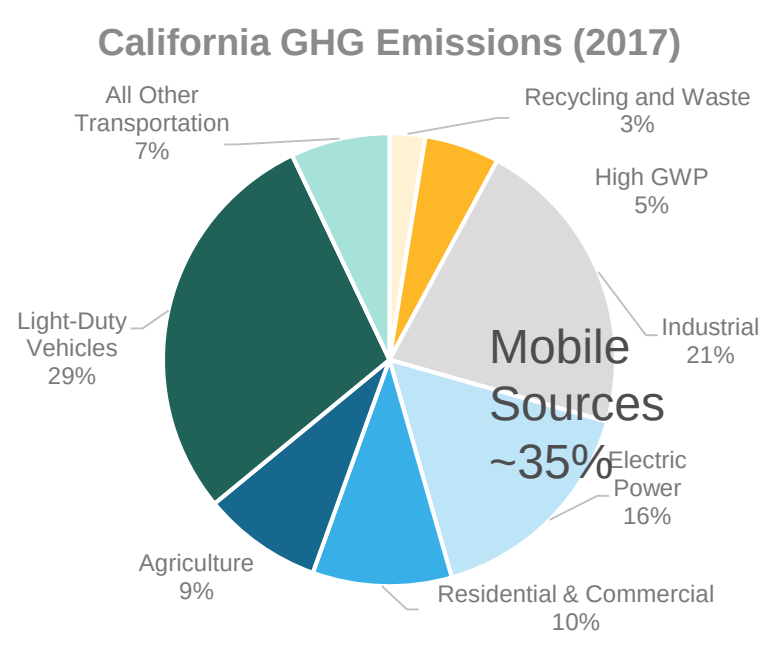
A Vision for Minimizing Real-World Emissions in the On-Road Sectors

November 15, 2018
Sacramento, CA

After 50 years of standards, mobile source emissions still significant share of inventory



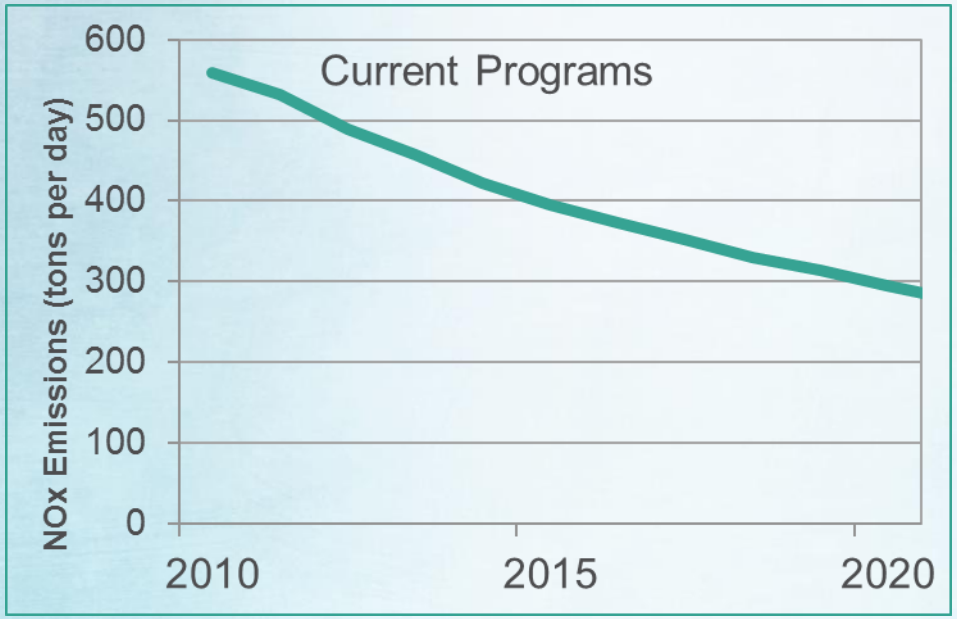


Mobile sources represent ~50% of GHG inventory when including emissions from fuel production

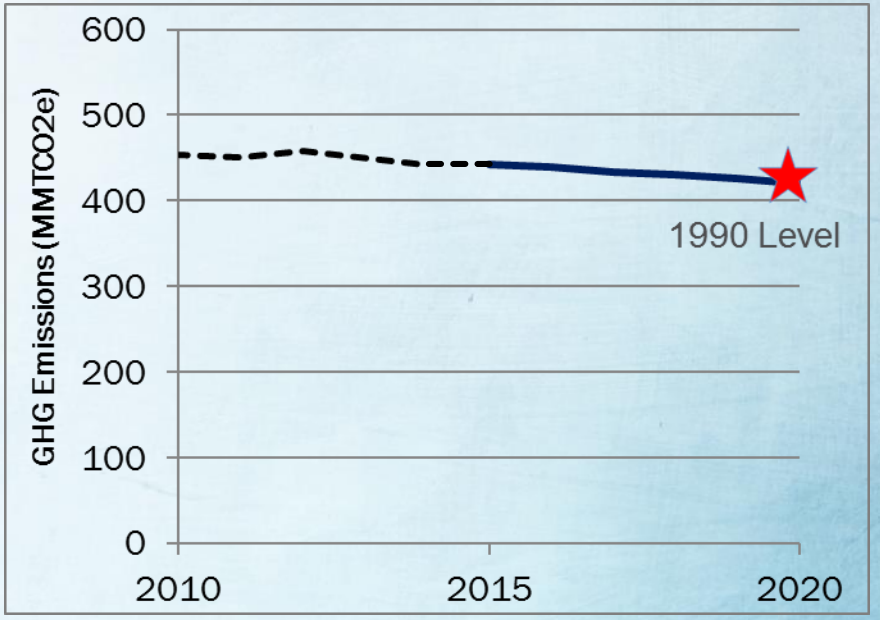
CARB

Current programs have achieved significant reductions

NOx, South Coast, All Sources

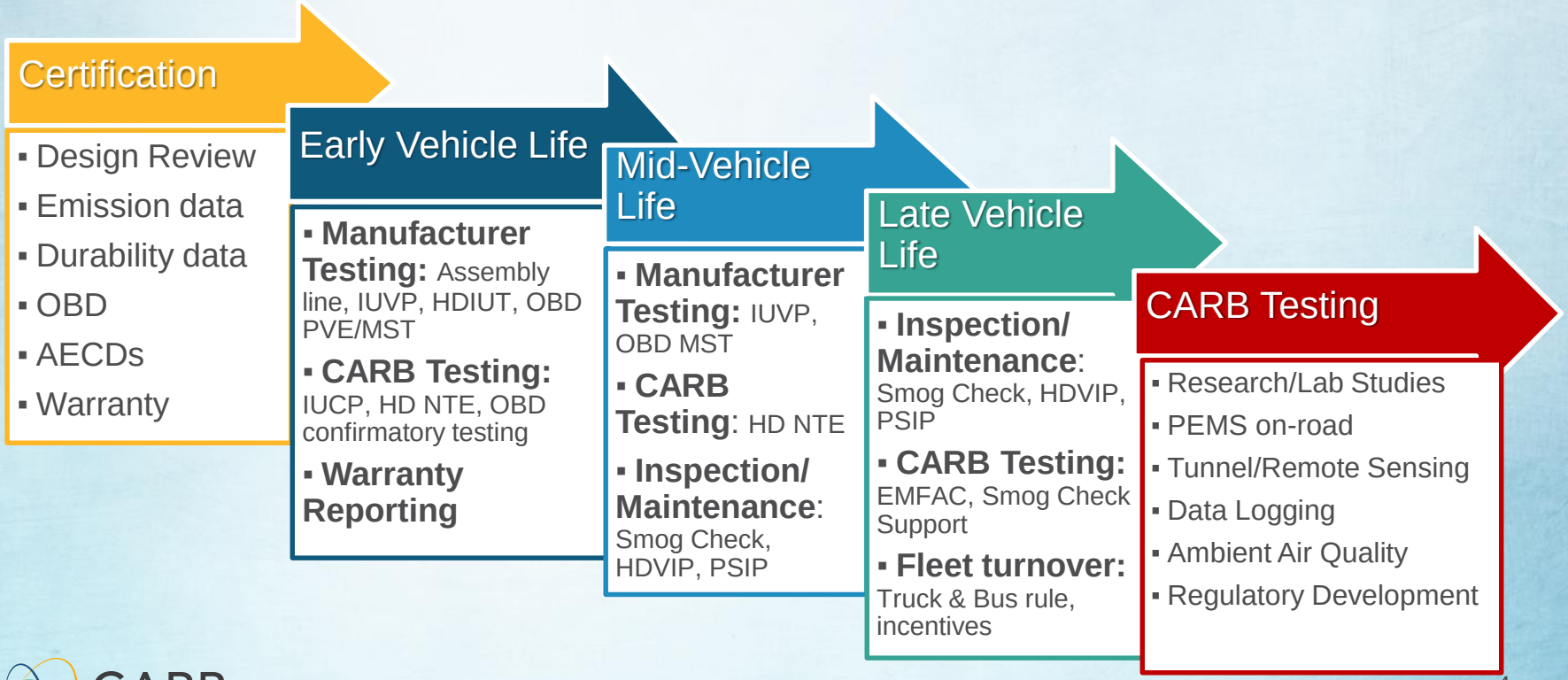


GHGs, Statewide, All Sources



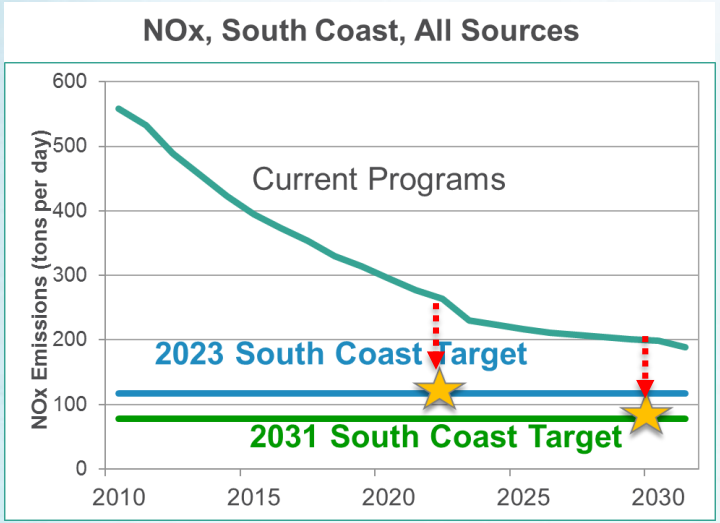
CARB

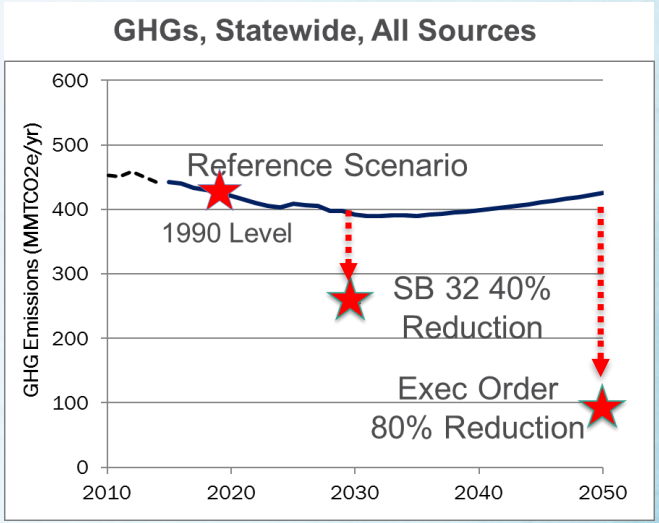
Reductions Achieved via Many Individual Elements



But we still need more

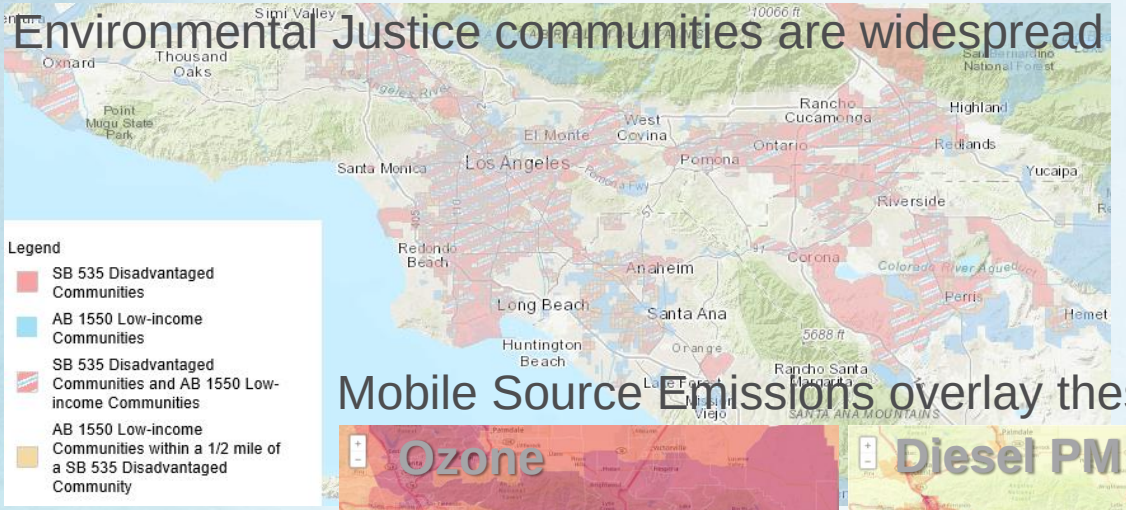
- South Coast Ozone
- San Joaquin Valley PM & Ozone
- Statewide GHGs



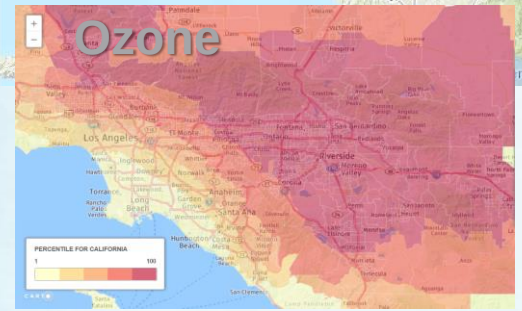


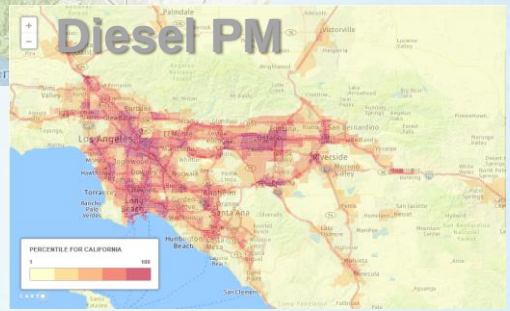
And in the most critical areas

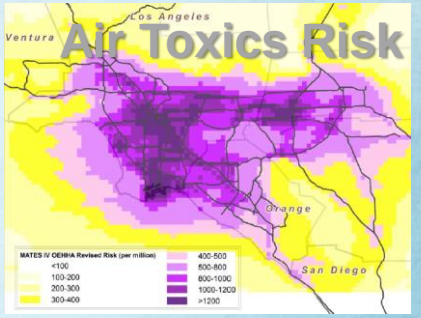
Environmental Justice communities are widespread



Mobile Source Emissions overlay these vulnerable populations

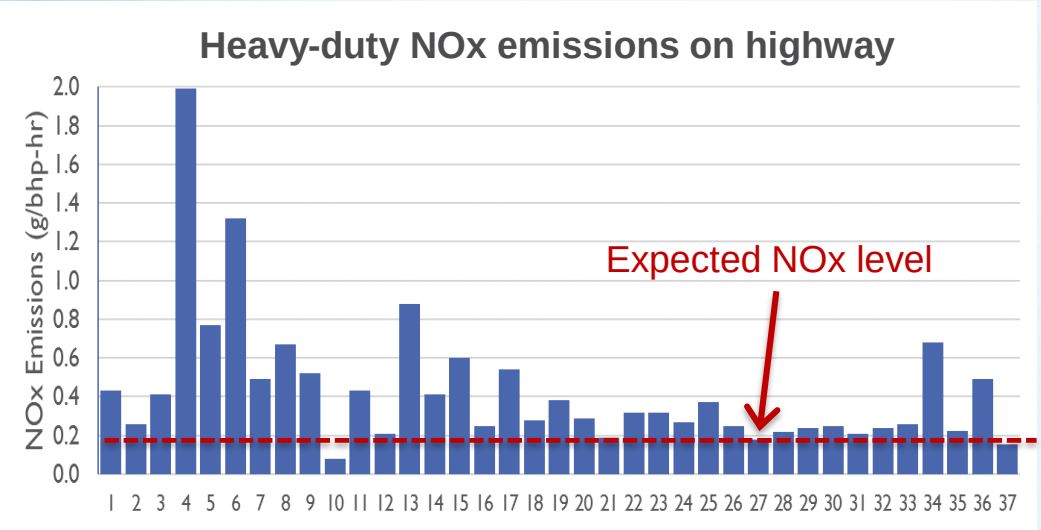


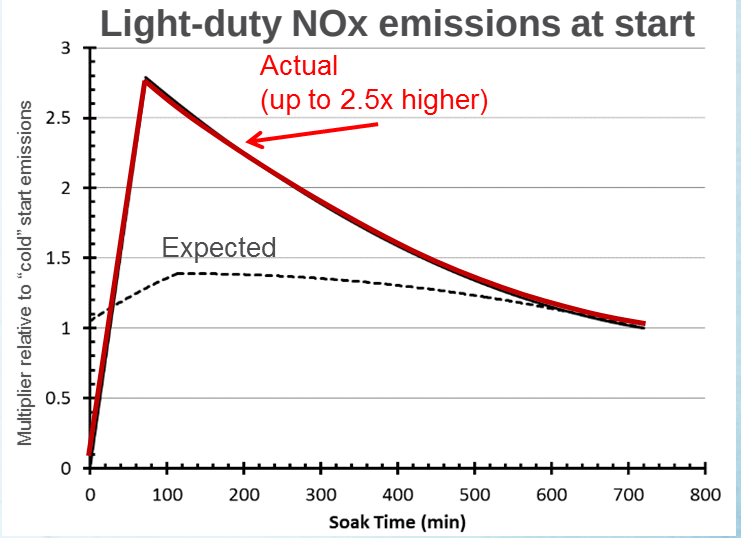




CARB

And we need to do better…
Some are still not performing as expected



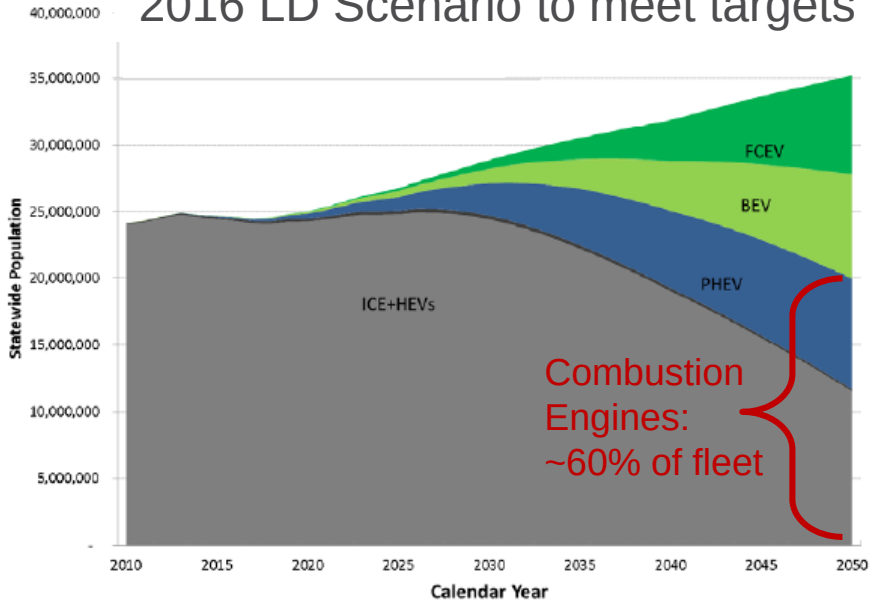


CARB

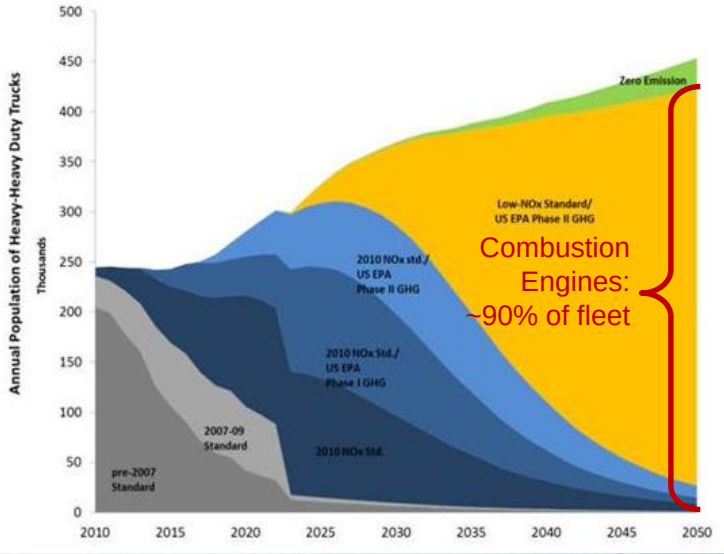
How do we do more?

Electrification is ultimate solution but
Combustion Engines still dominant for decades

2016 LD Scenario to meet targets



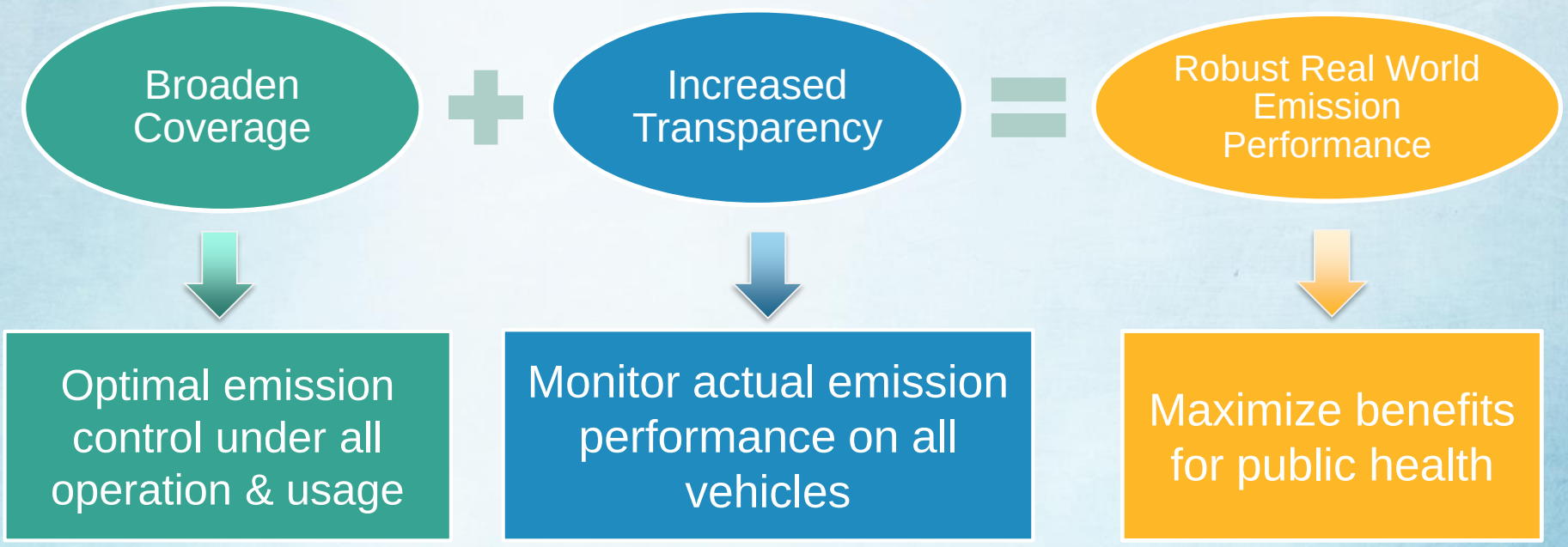
2016 HD Scenario to meet targets



https://www.arb.ca.gov/planning/sip/2016sip/2016mobsrc.htm

How do we do better?

Focus on Real World Emission Performance

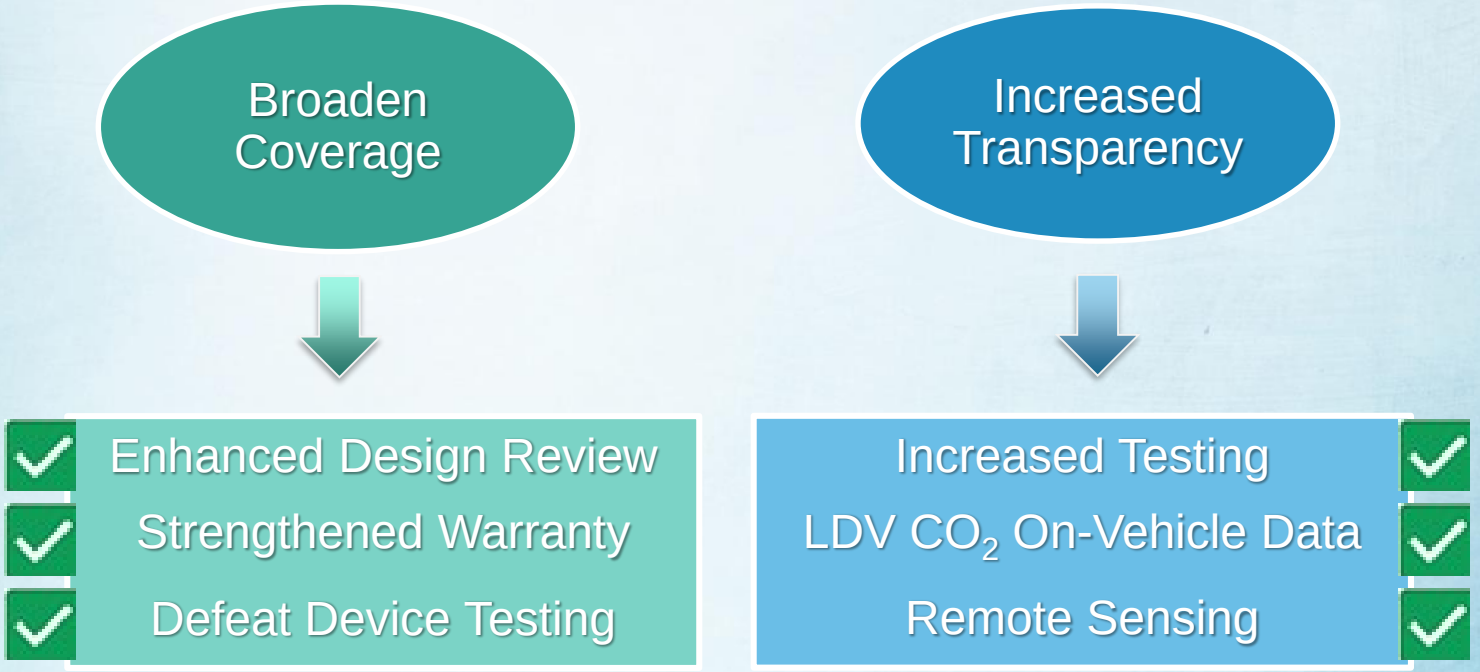


Game Plan

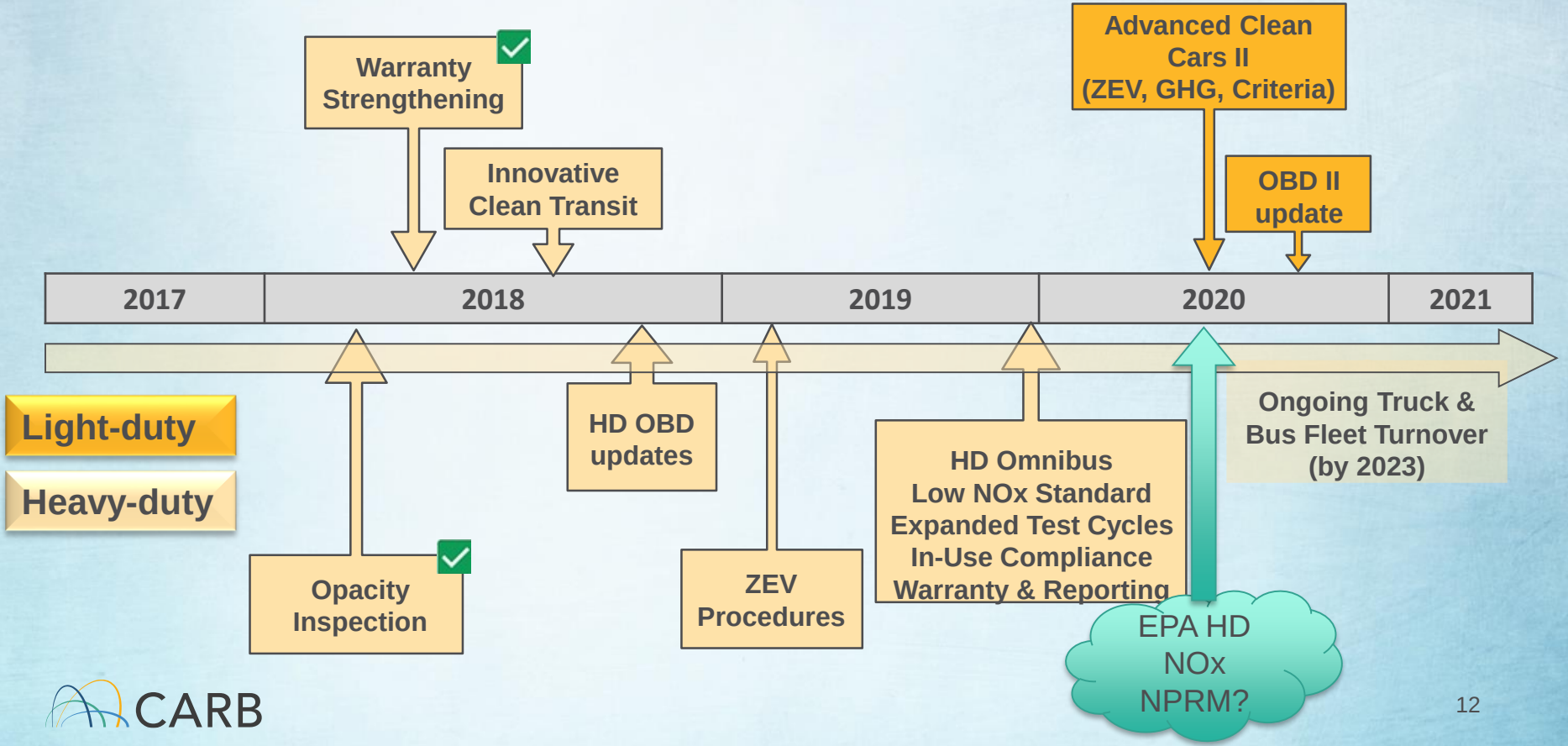
- [x] Already Implemented:
  - Refocus Actions within Existing Programs
- [ ] Next Steps:
  - Re-design Standards and In-Use Programs
- [ ] Longer Term:
  - Leverage New Technology and Data

CARB

Examples:
Already Implemented



Next steps: Regulatory Schedule

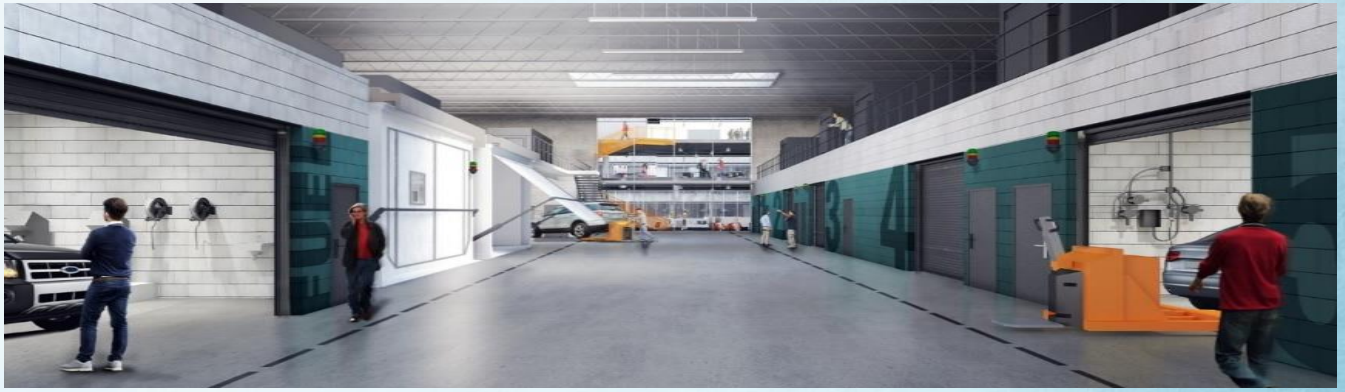


CARB

Next Steps: Expanding Testing

- New Southern California Laboratory
  - Increased HD and LD labs
  - On-road PEMS & OBD testing

Scheduled for 2021 opening



CARB

Next steps: REAL Concept

Real **E**missions **A**ssessment **L**ogging

- Require vehicles to track emission performance
  - Add software to store aggregated data on vehicle
- Start with existing sensors
  - Accuracy of on-board NOx sensors already within 15%
  - Fuel usage (to infer CO_2 emissions) already even more accurate
- Potential benefits:
  - Comprehensive feedback
  - More efficient than laboratory or PEMS testing
  - Future standards linked to on-road performance

Longer term:
Future Strategy Direction

- Further expand coverage with vehicle data
  - Enabling focused actions to achieve needed emission reductions
- Adapt to technology and societal usage changes
- Transfer technology to other Mobile Source sectors

CALIFORNIA
AIR RESOURCES BOARD

A Vision for Minimizing Real-World Emissions in the On-Road Sectors

END